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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,451	08/27/2003	Subhas C. Bose Jayappa Veeramma	011775-013210US	7137

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EXAMINER	
NADAV, ORI	

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/650,451	BOSE JAYAPPA VEERAMMA ET AL.	
	Examiner	Art Unit	
	Ori Nadav	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *4-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the disclosure as filed for a peripheral junction region being electrically isolated from the first electrode terminal, as recited in claim 1.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed limitations of a peripheral junction region being electrically isolated from the first electrode terminal, as recited in claim 1, are unclear as to how one device, wherein all the conductive parts are electrically connected to each other, can include a conductive region therein which is electrically isolated from its electrode terminal.

Drawings

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference sign 7(b) and corresponding n+ layer, is not depicted in figure 1. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Corrected figure 3 was received on 07/06/2005. These drawings are approved by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa et al. (5,241,210).

Nakagawa et al. teach in figure 10 and related text a power device, comprising:

a semiconductor substrate 31 of first conductivity having an upper surface and a lower surface;

a first electrode terminal 37 coupled to a first conductive region 32 provided proximate the upper surface of the substrate, the first electrode terminal being provided over the upper surface of the substrate;

a second electrode terminal (ground) coupled to a second conductive region 11 provided proximate the lower surface of the substrate, the second electrode terminal being provided below the lower surface of the substrate;

an isolation diffusion region 35 of second conductivity provided at a periphery of the substrate and extending from the upper surface to the lower surface of the substrate, the isolation diffusion region having a first surface corresponding to the upper surface of the substrate and a second surface corresponding to the lower surface;

a peripheral junction region 34 of second conductivity formed at least partly within the isolation diffusion region and formed proximate the first surface of the isolation diffusion region, the peripheral junction region being separated from the second electrode terminal by the isolation diffusion region,

wherein the peripheral junction region is provided to compensate the surface depletion of the isolation diffusion region.

Nakagawa et al. do not state in the embodiment of figure 10 that the peripheral junction region is electrically isolated from the first electrode terminal.

Nakagawa et al. teach in the embodiment of figure 31 a peripheral junction region being electrically isolated from the first electrode terminal.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an isolation region on top of the upper surface of the substrate of Nakagawa et al.'s device such that the peripheral junction region is electrically isolated from the first electrode terminal, in order to provide better protection for the device.

Regarding claim 2, Nakagawa et al. teach substantially the entire claimed structure, as applied to claim 1 above, except a peripheral junction region being a P+ region and the isolation diffusion region being a P region. Nakagawa et al. teach in figure 2 a peripheral junction region 10 being a P+ region and the isolation diffusion region 7b being a P region. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a peripheral junction region being a P+ region and the isolation diffusion region being a P region in Nakagawa et al.'s device in order to use the device in an application which require this type of conductivity. Note that it is conventional to reverse the polarity of the transistor, of which official notice is taken.

Response to Arguments

Applicant argues that figure 1 should not be designated as Prior Art, because it is only conventional to the inventor and not to the public.

The disclosure does not state that figure 1 is only conventional to the inventor and not to the public. The disclosure recite "figure 1 shows a conventional power device".

Applicant argues that figure 1 should not include reference sign 7(b) and corresponding n+ layer.

Figure 1 should include reference sign 7(b) and corresponding n+ layer, because the device of figure 1 is a thyristor, and thus requires a corresponding n+ layer.

The rest of applicant's arguments with respect to claims 1-3 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ori Nadav whose telephone number is 571-272-1660. The examiner can normally be reached between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Loke can be reached on 571-272-1657. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

O.N.
7/13/05

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